

# **LOCKFORMER**

*Where the Machines of Tomorrow are Made Today<sup>SM</sup>*

9 5A. **20 GAUGE CAPACITY  
PUNCH SNAP LOCK MACHINE**

**INSTRUCTIONS and PARTS DIAGRAM**



**THE LOCKFORMER COMPANY**

applied either manually or by a felt wiper pad mounted on the machine.

To obtain the best lock, it will be necessary to insure that the material is in contact with the entrance starting gauge throughout the complete length of the sheet being formed. Certain materials, as well as hold-down adjustment, may have a tendency to allow the material to drift away from the gauge. When this occurs the lock will be improperly formed - and you may also lose the hem return. The same condition will exist if the entrance gauge is not set correctly. To minimize end kick or exit deformation, the material should be held to the exit gauge as the material emerges from the machine.

## STRAIGHTNESS:

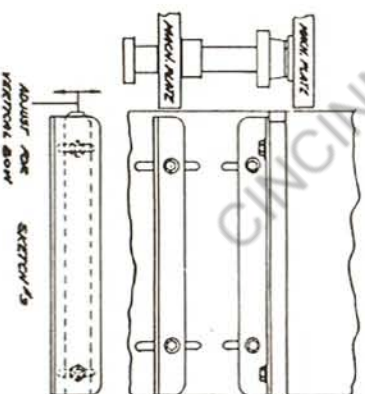
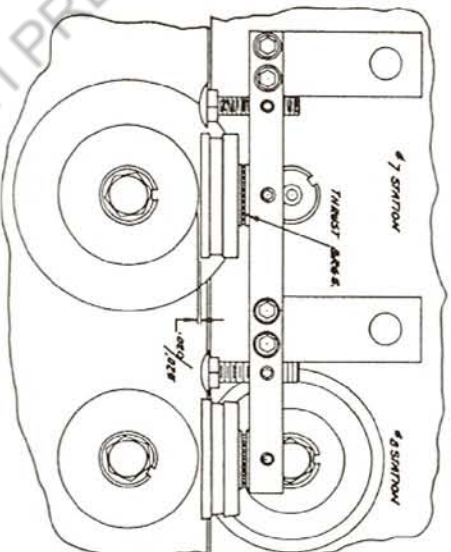
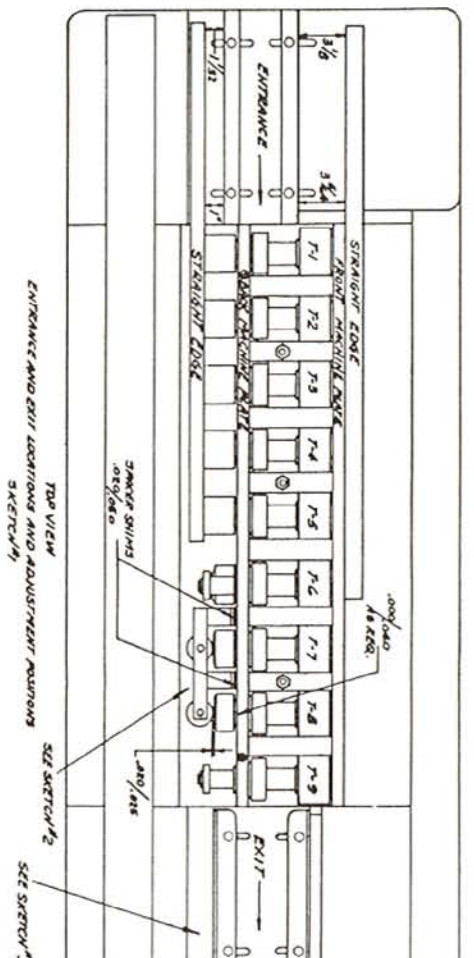
A side bow or barrel effect on the receiver lock can be adjusted by changing stud settings and making sure that exit gauge is not bearing against formed edge.

Upward or downward bow can be eliminated by raising or lowering the adjustable gauge bar on the exit end of the machine. Upward bow can be compensated by lowering the exit bar and applying an increased amount of pressure to the formers lock. A downward bow indicates too much pressure against the material - Raise bar slightly.

Should the auxiliary button flange bow downward the exit plate may be raised to eliminate bow. Upward bow is indicative of exit plate being too high.

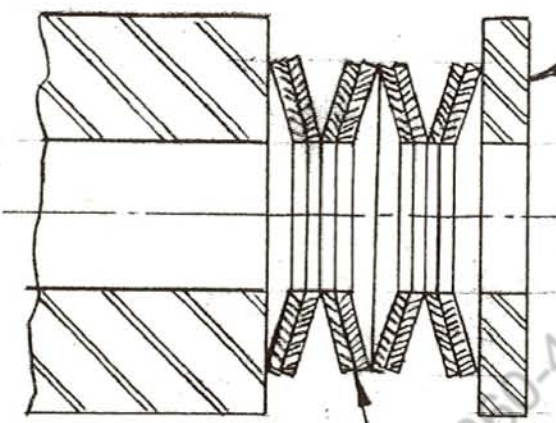
## LUBRICATION:

There are seven lubrication fittings located on the underside of the stand roller case. These fittings are for the high speed reduction bearings which should be lubricated after every four hours of operation. Lubricate gears periodically as required. Recommended lubricant: Standard Viscous #3 (a product of the Standard Oil Company) or equivalent.



56647

62081



2 WASHERS (62341)  
PER GROUP.  
4 GROUPS PER STACK

ASSEMBLY NOTE-  
TIGHTEN TO SOLID THEN  
BACK OFF (1) FULL TURN

FOR 5/8 DIA. STUD

REQ. PER MACH.

FRAC. TOL.	DEC. TOL.	ANG. TOL.	DRAWN BY	CHECKED BY	DATE	REVISIONS
			<i>ERL</i>		9-26-66	<i>MI</i>
<p>THE LOCKFORMER CO.          4615 W. ROOSEVELT ROAD          CHICAGO 50, ILLINOIS</p>						
MACHINE	PART NAME	MATERIAL	HEAT TREAT	PART NUMBER	SCALE	
	<i>SPRING WASHER ASSEM</i>			<i>56647</i>	<i>NONE</i>	
6.						
5.						
4.						
3.						
2.						

## CAPACITY

20 Gauge Galvanized and Lighter

## MATERIAL REQUIREMENTS:

- (1) 1-5/16" Receiver Lock
- (2) 7/16" Button Flange (90°)

Total amount of material 1-3/4". This amount is to be added to formed sections for calculation of sheet sizes. The above dimensions can be somewhat modified by varying the entrance gauge settings to suit the requirements of a specific project or material.

NOTE: The machine has been tested and adjusted at the factory on 20 gauge through 26 gauge material and as delivered is ready for normal operation.

## ELECTRICALS:

Standard electricals: 3 H.P. 220/440 volts, 60 cycle, 3 phase motor and starter. Wire starter for voltage indicated on order. Normal wiring 220 volt operation unless otherwise indicated.

## OPERATION:

Start machine and feed material into either roll set by holding the material flush against the gauge and feeding material into the rolls. Keeping the material with the same side up, run the second lock on the opposite side of the sheet. Check the end results and adjust accordingly if locks are not satisfactory.

## RECEIVER LOCK:

(Inboard Roll Set)

The main adjustments affecting the receiver

lock are the three holddown studs that pass through the spacer bars, (they are stamped #1, 2 and 3) the entrance and exit gauge bar settings.

To adjust the three holddown studs proceed as follows:

- (1) Loosen the 1/4" lockscrews on the holddown studs.
- (2) Tighten all three studs tight.
  - (A) #1 Stud (entrance end of machine) 1/8 to 1/4 turn loose.
  - (B) #2 Stud (Center) 1/4 to 1/2 turn loose.
  - (C) #3 Stud (Exit) 3/8 to 1/2 turn loose.

The settings may be changed slightly to obtain the most satisfactory piece. When the proper settings are obtained tightened the 1/4" Lock Screws.

## BUTTON FLANGE LOCK: (Auxiliary Rolls)

The two 3/8 Studs that pass through the plates and the auxiliary side of the machine are the only points of adjustment for forming the 90° flange.

To adjust the auxiliary rolls proceed as follows:

- (1) Tighten the two studs.
- (2) Loosen 1/4 to 1/2 turn.

If the material shows signs of stretch or excessive pressure loosen studs slightly. The material should emerge from the machine with a properly formed angle to obtain 90° duct corners when locks are snapped together. The angle can be controlled by the location of the top number eight forming roll on the shaft and the

positioning in or out of the idler bracket located at the seventh and eighth roll station.

To adjust the above proceed as follows:

- (1) Remove the two idler bracket retaining cap screws. Note shims are placed between the bracket and the plate. Shims may range from .020 to .030 to insure proper flange. CAUTION: Do not lose shims.
- (2) Remove top and bottom #8 roll station. Note: Loosen set screw in T-8 roll station.
- (3) To increase angulation of formed flange add from .010 to .040 shims 7/8" I.D. on the roll shaft.
- (4) Place the roll onto the shaft securely by tightening set screw.
- (5) Replace bottom 8 roll.
- (6) Replace Idler Bracket Assembly.

NOTE: If duct snaps together and forms an angle of less than 90° then too much pressure is applied by the top 8 roll or Idler Bracket Rollers. Adjust roller and bracket to obtain proper results.

## GAUGE SETTINGS: (See Sketches #1, 2 & 3)

Improperly formed receiver lock or height of flange could be caused by improper entrance gauge settings.

To reset entrance gauge proceed as follows:

- (1) Place a straight edge along the outer edge of the machine plate for the receiver lock and along the outer edge of forming roll station #2 through 6 for the bottom flange. (The number 1 roll station rolls are shorter in length so that they may be shimmed away from the machine plates to locate the punch closer to the bendline, thereby achieving a tighter fit on the snap.

WARNING: The gauge setting should not be made while the #1 station is shimmed away from its normal location and protruding beyond the other roll stations. The top #1 roll is

fastened to the shaft by a bolt and washers. The bottom roll is not restrained by the bolt and washer but is held in position by a shoulder on the #1 roll and it should be allowed to float. The shim, if required, should be placed behind the top roll only.

- (2) Measure in from the straight edge to the extreme ends of the entrance gauge bar the required amounts listed below:

Receiver Lock 3-5/64" from end of bar closest to #1 Roll.

3-1/8" from end of bar furthest from #1 Roll.

Button Flange 1" from end of bar closest to #1 Roll.

1-1/32" from end of bar furthest from #1 Roll.

The above settings are approximate and may be slightly increased or decreased to meet specific requirements.

## TROUBLE CHECKS:

Due to the unusual physical characteristics of certain types of material, it may become necessary to reset the entrance gauge bar in its entirety. In the event that the material pulls away from the gauge or the lock is not formed properly, the gauge taper can be increased - or the entire gauge setting may be increased or decreased slightly to achieve required results. Exit gauge bars are set to, but not against the formed edge of the material when emerging from the machine.

When running certain types of material, it may be necessary to add a slight lubricant to the edge of the sheet being formed to aid the flow of material into the finished lock. The above may be required if the 1/8" return hem does not form properly - or is irregular in nature or tends to wave at ends of the formed section - or entrance gauge adjustments do not correct or compensate for the proper formation.

The lubricant may be any light machine oil -

# PARTS LIST

## 20 GAUGE BUTTON PUNCH SNAP LOCK MACHINE

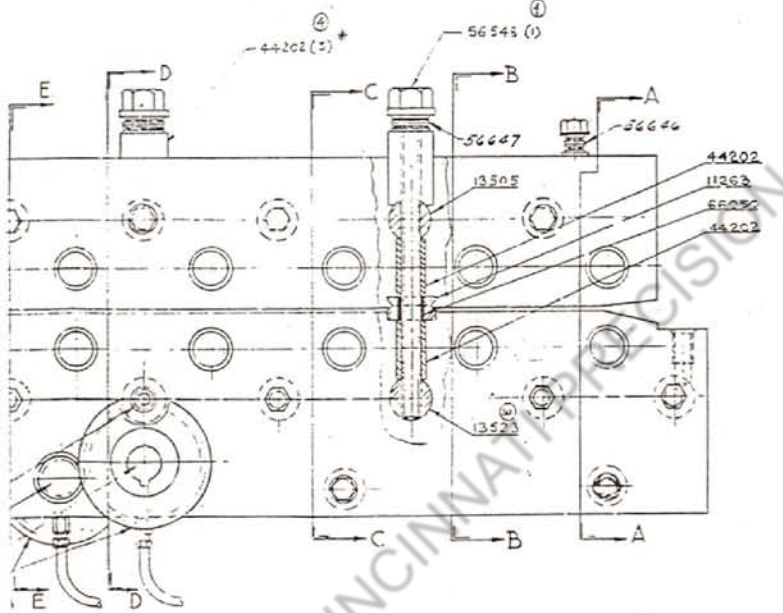
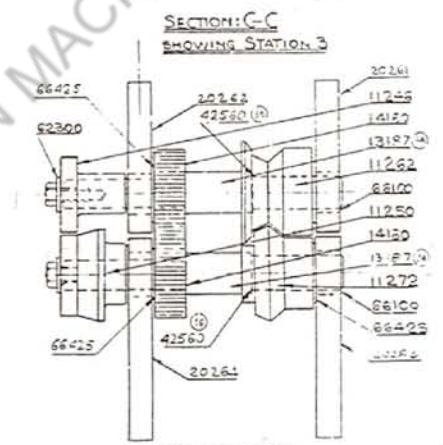
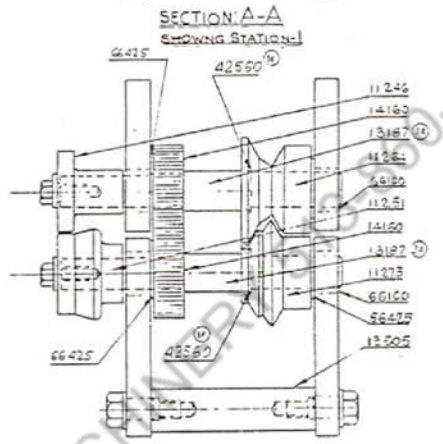
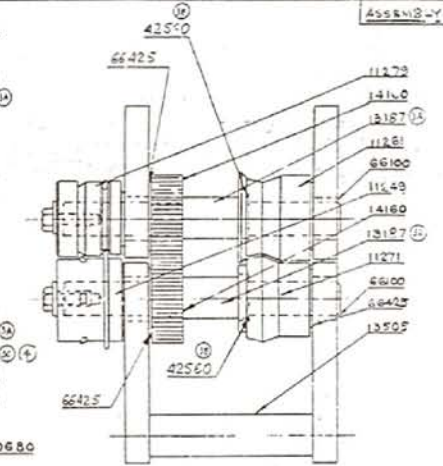
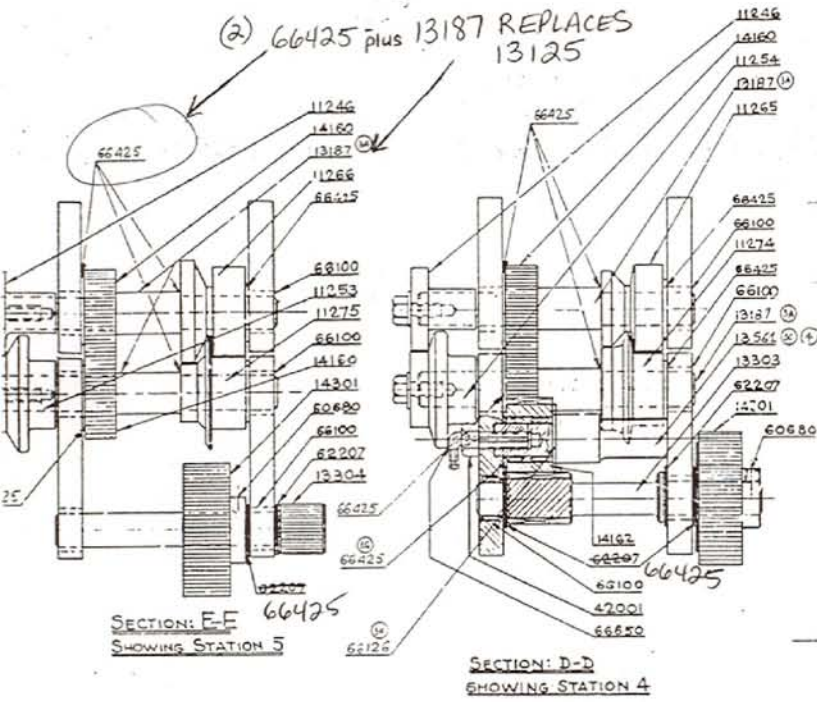
NEW PART NO.	DESCRIPTION	PIECES PER UNIT	NEW PART NO.	DESCRIPTION	PIECES PER UNIT
20263	Lower Front Plate	1	66301	TRA 815	4
20264	Lower Back Plate	1	80103	Motor Control	1
20261	Upper Front Plate	1	82249	W49 Heater Element	3
20262	Upper Back Plate	1	80483	BX Connector 3/8	1
<del>13125</del>	Roll Shaft	18	80422	BX Cable 12 3 66	1
use 13187 + (2) 66425 WASHERS (BEARINGS)					
14160	Drive Gear	18	80071	3 H.P. 3 60 36 145	1
13505	Plain Spacer	11	70431	2 BK 40 7/8 Sheave	1
13553	Spacer Drilled on Center	3	70480	2 BK 80 H 1 Sheave	1
13659	Main Idler Spacer	1	70056	5 L 540 Belt	2
13604	Idler Spacer Plain	5	62633	3/8 x 1 Dwl.	2
13655	Spacer Drilled on Center Idler	2	61120	3/8-16 H.N. Hvy. S.F.	4
14162	Main Idler Gear	1	61300	3/8-16 Jam Nut S.F.	2
14161	Idler Gear	7	60750	1/4-20 x 1/2 Sq. HSS HT	3
14301	Drive Gear	1	62364	1/2 Lock Washer	43
13301	1st Drive Shaft	1	60228	1/2-13 x 1-1/2 HHCS HT	38
13304	2nd Drive Shaft	1	60157	1/2-13 x 2-1/4 HHCS	2
13303	3rd Drive Shaft	1	62402	15 Woodruff Key	39
66425	TT1079 1 Thrust Bearing	25	60450	1/2-13 x 1 SHCS	1
62026	3/8 x .052 Washer	2	60954	1/2-13 x 1 FHSCS	4
62029	3/8 x 1/16 Washer	15	60680	3/8-16 x 3/8 SSS	3
62340	3/8 Blvl. Washer	24	60877	3/-16 x 1-3/4 CB	3
62551	3/8-16 x 6-1/2 Stud	2	60878	3/8-16 x 2 CB	1
56548	Hex. Stud Assembly H.T.	1	58508	Stand Assembly	1
60475	Hex. Stud Assembly	2	29469	Motor Base	2
62081	5/8 x 3/16 Washer	3	60551	1/4-20 x 1/2 RHMS	3
62341	5/8 Blvl. Washer	24	85178	Lockformer Logo	1
14622	Saddle Washers	3	39504	Cover Assembly	1
42001	Lube Bolt	1	21512	Material Support B.L.F.	1
66111	HJ 162412 Torr. Bearing	2	31432	Entrance Table Pad Fem	1
66090	B1416 Torr. Bearing	7	21584	Material Support Auxiliary	1
66100	B1612 Torr. Bearing	38	21583	Entrance Table Pad Assembly	1
66101	B1612 OH Torr. Bearing	4	11261	20 BLF T1	1
66000	B88 Torr.	2	11262	20 BLF T2	1
66050	B1012 Torr. Bearing	1	11263	Idler Roll 2, 3	1
66300	NTA 815 Torr.	2	44202	Spacer	2

# PARTS LIST

## 20 GAUGE BUTTON PUNCH SNAP LOCK MACHINE

NEW PART NO.	DESCRIPTION	PIECES PER UNIT	NEW PART NO.	DESCRIPTION	PIECES PER UNIT
11264	20 BLF T3	1	11254	B6 Forming Roll	1
11265	20 BLF T4	1	11255	B7 Forming Roll	1
11266	20 BLF T5	1	11282	B8 Forming Roll	1
11267	20 BLF T6	1	11283	B9 Forming Roll	1
11268	20 BLF T7	1	21582	Exit Base Plate	1
11269	20 BLF T8	1	29601	Exit Gauge	1
11270	20 BLF T9	1	66640	1610 Gear Fittings	7
21303 <del>21452</del>	Entrance Gauge Bar	1	66610	886L Hlf. Union	7
21810	Entrance Hold Down	1	66650	Angle Body	1
11271	20 BLF B1	1	66600	886L Female Coupling	7
11272	20 BLF B2	1	66700	Nyla Tubing 4/15	60
11273	20 BLF B3	1	66700	Nyla Tubing 3/19	57
11274	20 BLF B4	1	60000	1/4-20 x 1/2 HHCS	2
11275	20 BLF B5	1	60875	3/8-16 x 1 C.B.	10
11276	20 BLF B6	1	14504	Idler Roll Pins	2
11277	20 BLF B7	1	21303	Entrance Gauge	1
11278	20 BLF B8 B9	2	37000	Grease Fitting Shim	1
53300	Exit Gauge Assembly	1	51900	Fibre Gear Assembly	1
21753	Hold Down Bar	1	60047	5/16-18 x 3/4 HHCS	2
11245	T1 Forming Roll	1	60048	5/16-18 x 1/4 HHCS	4
11246 <del>12246</del>	T2, 3, 4, 5, 6, Forming Roll	5	60304	1/4-20 x 1 SHCS	1
40290	Idler Bracket Mach.	1	60401	3/8-16 x 3/4 SHCS	1
11247	T7 Idler Roll	1	60500	1/4-20 x 3/8 FHMS	5
11248	T8 Idler Roll	1	60575	10-24 x 3/8 RHMS	4
60611	1/4-20 x 3/8 SSS	2	60593	10-32 x 7/16 FHMS	2
11280	T8 Forming Roll	1	60795	4 x 3/16 Drive Screw U. Cad.	4
11281	T9 Forming Roll	1	61040	10-24 H.N.	4
62421	3/16 Sq. x 7/8 Key	17	61101	5/16-18 H.N. Hvy. S.F.	4
60091	3/8-16 x 1 HHCS	17	61122	3/8-16 H.N. Fin.	2
62301	3/8-C Washer	15	62010	5/16 x 1/16 Washer	8
11249	B1 Forming Roll	1	62362	5/16 Lock Washer Med.	4
11250	B2 Forming Roll	1	80484	BX Connector 3/4	1
11251	B3 Forming Roll	1	80601	Rg. Tng. Terminal	4
11252	B4 Forming Roll	1	80928	Back Enclosure	1
11253	B5 Forming Roll	1	85156	Name Plate	1

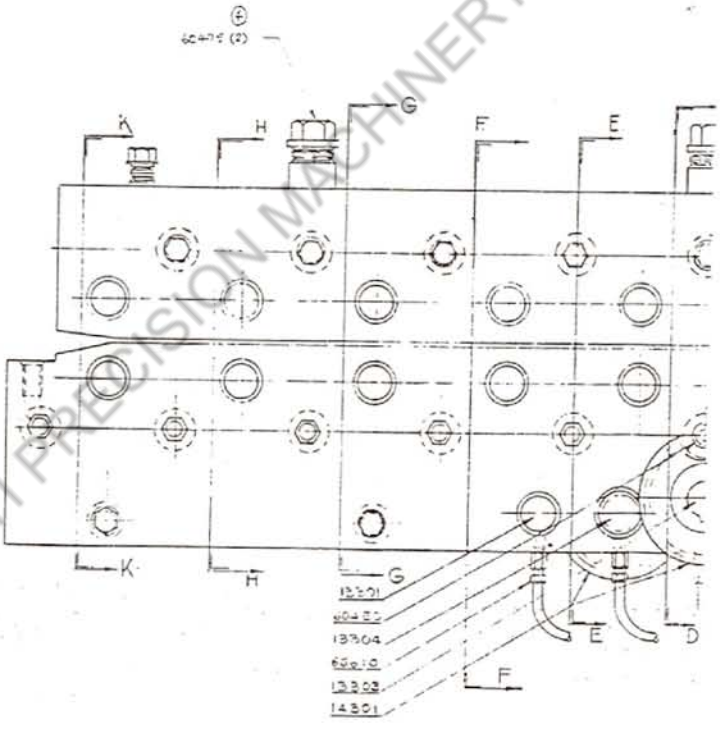
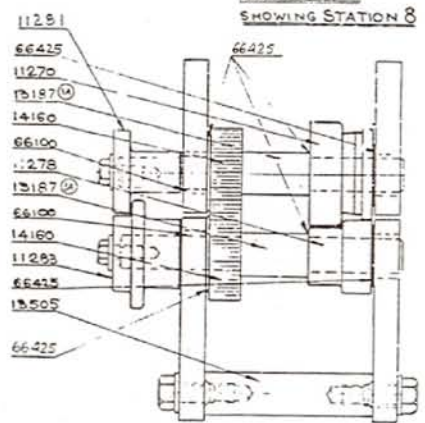
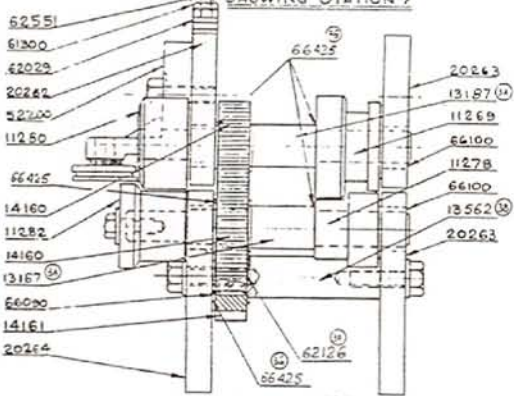
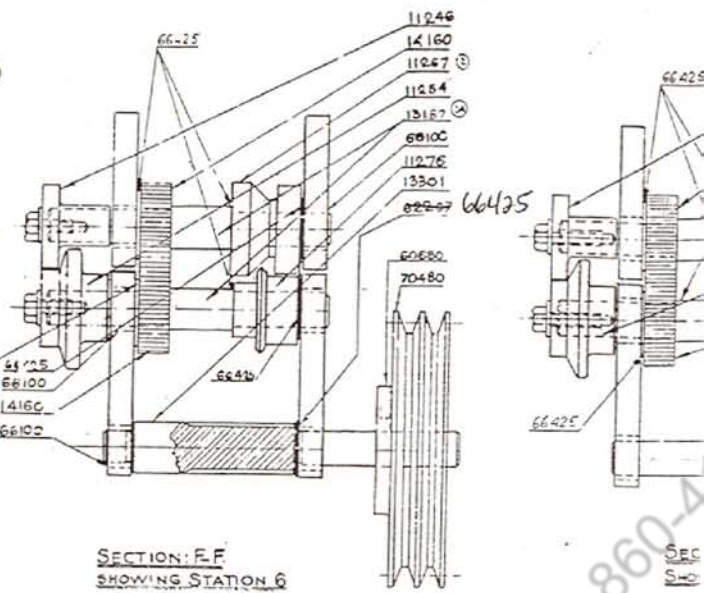
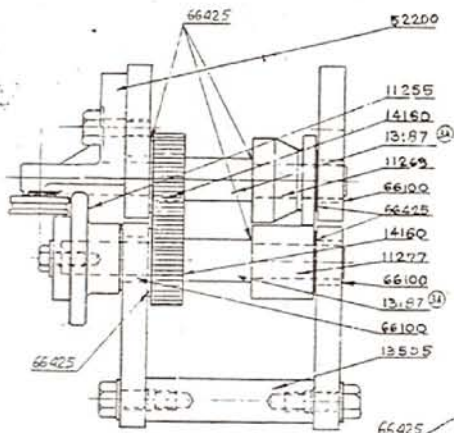
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44202 (2) 56543 (1) 56647 (1) 56644 (1)

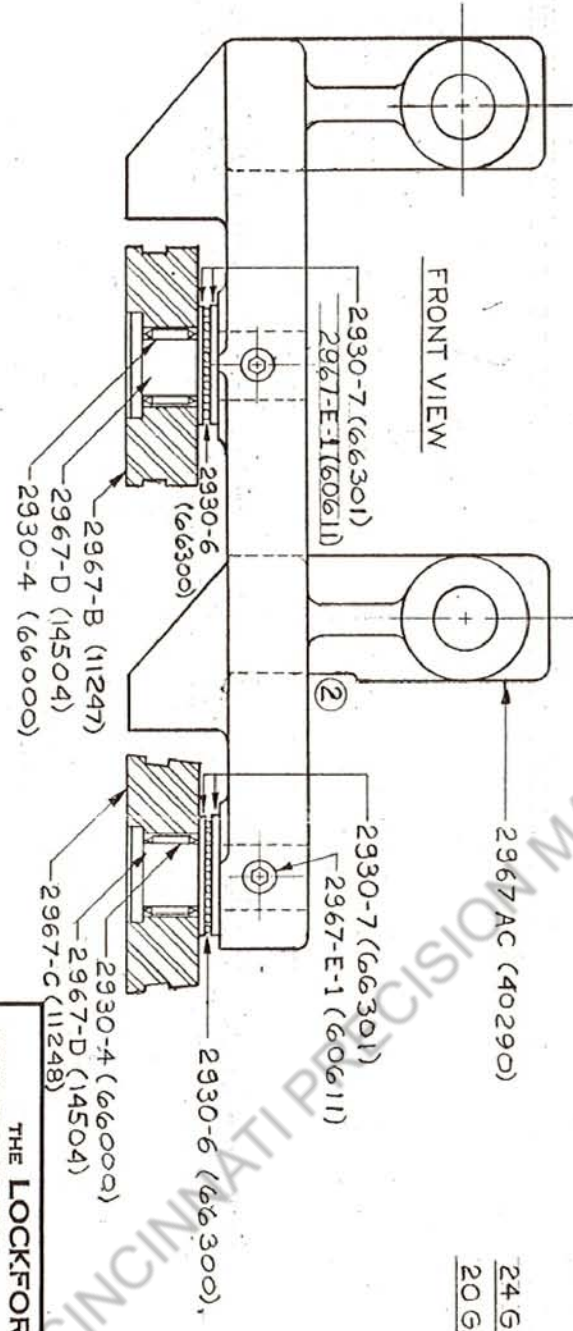
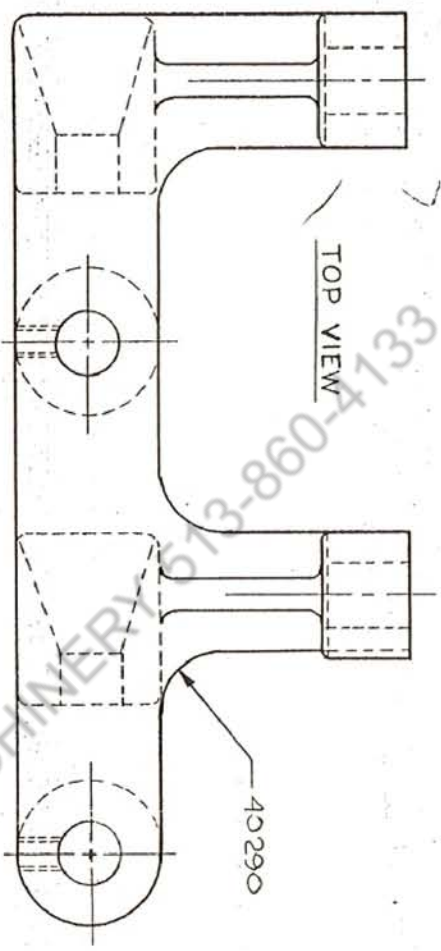
THE LOCKFORMER CO.		CHICAGO 90, ILLINOIS	
MACHINE 20 GA BUTT WELD		PART NUMBER	
PART NAME GENERAL ASSEMBLY		59015	
DATE 2-15-68		REVISIONS	





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52200  
2967-AC  
ASSEM.



FOR MORE INFORMATION SEE DETAIL DRAWINGS

24 GA. BUTTON LOCK 1 REQ.  
20 GA. BUTTON LOCK 1 REQ.

FRAC. TOL.	DEC. TOL.	ANG. TOL.
±1/64	±.003	

DRAWN BY W.W.		CHECKED BY		DATE 1-4-63	
<p>THE LOCKFORMER CO. 4615 W. ROOSEVELT ROAD CHICAGO 80, ILLINOIS</p>					
MACHINE 20-24GA.BUTTON LOCK		PART NUMBER 52200		SCALE FULL	
PART NAME IDLER ROLL HOLDER ASSEM.		PART NUMBER 2967-AC		DATE 4-11-74	
MATERIAL		HEAT TREAT		REVISIONS	
				3. ADDED NEW 13M NUMBERS D.O. 4-11-74	
				2. REVISED CASTING 3-15-66 W.W.	
				1. W	

3

56646

62029



3 WASHERS (62940)

PER GROUP.

4 GROUPS PER STACK

ASSEMBLY NOTE-

TIGHTEN TO SOLID THEN

BACK OFF (1) FULL TURN

FOR 3/8 DIA. STUD

REQ. PER MACH.

THE LOCKFORMER CO.

4815 W. ROOSEVELT ROAD

CHICAGO 90, ILLINOIS

MACHINE

PART NUMBER

PART NAME

SPRING WASHER ASSEMBLY

56646

MATERIAL

HEAT TREAT

SCALE

NONE

DRAWN BY

PK

CHECKED BY

DATE 9-26-66

1.		
2.		
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6.		
		REVISIONS

TOL.

DEC. TOL.

ANG. TOL.

